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(54) **A METHOD TO PREPARE FOOD SEASONING, FOOD INGREDIENT AND FOOD ITEM COMPOSITIONS, SEASONING AND USE THEREOF**

VERFAHREN ZUR HERSTELLUNG EINES NAHRUNGSMITTELGEWÜRZES,  
ZUSAMMENSETZUNG FÜR NAHRUNGSMITTELEINGREDIENTEN UND NAHRUNGSMITTEL,  
GEWÜRZE UND VERWENDUNG DERSELBEN

PROCEDE DE PREPARATION D'ASSAISONNEMENT ALIMENTAIRE, COMPOSITIONS POUR  
INGREDIENTS ALIMENTAIRES ET POUR ALIMENTS, ASSAISONNEMENT ET UTILISATION DE  
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• **BIOCHIMICA ET BIOPHYSICA ACTA, Volume**  
**732, 1983, IKUO IKEDA et al., "Some Aspects of**  
**Mechanism of Inhibition of Cholesterol**  
**Absorption by beta-Sitosterol", pages 651-658.**

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**Description**Field of the invention

[0001] The present invention relates to an entirely novel principle of changing the composition of seasonings, food ingredients and food items so that oral ingestion of the ultimate edible food items results in an unexpectedly effective and lasting lowering of serum cholesterol levels. The invention enables a much better control of elevated blood pressure than could be expected on the basis of the knowledge on the effects of the use of the various ingredients according to the prior art. The present invention involves a simultaneous, appropriately high increase in the dietary concentrations of certain mineral element nutrients and those of certain natural plant sterols or their chemically modified derivatives.

Background of the invention

[0002] Obesity (overweight), elevated blood pressure and increased serum cholesterol levels are the main causes of cardiovascular diseases which, in turn, are the leading cause of premature deaths in all industrialized societies. In spite of enormous efforts, the average body weight of inhabitants of the industrialized societies is continuously increasing, and no effective and practical method has been found to decrease serum cholesterol and elevated blood pressure in the whole population rather than in the individuals with the highest risk only.

The present invention represents a dietary method by which the above-mentioned main ailments of the industrialized societies can be practically and effectively controlled.

[0003] A high serum cholesterol level is a major risk factor of coronary heart disease (also called ischaemic heart disease) which, in turn, is the leading cause of death in industrialized countries. Lowering of serum cholesterol levels decreases the incidence of coronary heart disease.

It is well-known that some plant sterols, especially beta-sitosterol and its hardened form, beta-sitostanol, decrease the absorption of dietary cholesterol from the intestine. A recent invention (PCT/FI91/00139 which corresponds to WO 92/19640) made a significant contribution to a more efficient use of the principle of the inhibition of cholesterol absorption. However, the plant sterols and stanols are able to inhibit the absorption of dietary cholesterol only if they are present in the intestine simultaneously with the dietary cholesterol. In the invention in accordance with PCT/FI91/00139, a stanol ester is incorporated in vegetable fat which is essentially free of cholesterol. Furthermore, the main embodiment of said invention is margarine which is commonly used with bread, a food item also essentially free of cholesterol. It has to be borne in mind that, by far the most prominent sources of dietary cholesterol are eggs, meats and meat products, as well as butter and other dairy products.

[0004] Moreover, the rate of the endogenous synthesis of cholesterol may be a more important factor in the long-term control of serum cholesterol level than the intestinal absorption. Unfortunately, the use of sitostanol according to PCT/FI91/00139, or increased intake of other compounds which decrease the gastrointestinal absorption of dietary cholesterol, increase the endogenous synthesis of cholesterol remarkably, by 34.9 % in a recent study (T.A. Miettinen, Duodecim 1996; 112: 1149-1154). Therefore, the increased synthesis of cholesterol in the body markedly counteracts the serum cholesterol lowering effect of sitostanol and that of the natural plant sterols. These factors may explain the fact that, according to long-term experience, increased intakes of these sterols and stanols lead to a mild fall of serum cholesterol levels only.

It should also be borne in mind that, the detrimental effects of a given serum cholesterol level on blood vessels and cardiovascular diseases may be remarkably influenced by several, partly hitherto unidentified factors.

Summary of the invention

[0005] It was discovered that, by increasing the levels of the essential mineral element nutrients potassium and, in particular, those of magnesium and calcium in appropriately high concentrations in the diet and, hence, in the gastrointestinal tract simultaneously with the increase of plant sterols and/or their stanol derivatives, an unexpected beneficial interaction takes place, greatly exceeding any effect which one could expect on the basis of current knowledge. Surprisingly, the lowering of serum cholesterol levels exceeds remarkably, even several fold, that produced by the plant sterols when these agents are used according to the prior art.

[0006] An objective of the present invention was to create a method which, using naturally occurring food constituents, could produce seasoning, food ingredient and, ultimately, food compositions which, in a natural, physiological way, should be able to bring about a more effective lowering of serum cholesterol than plant sterols, their stanols or the fatty acid ester derivatives of the sterols and stanols do when used according to prior art methods. In fact, a new method and compositions of food ingredient mixtures, seasonings and, ultimately, food items which, when ingested by oral route, lead to an unexpectedly effective lowering of serum cholesterol, were invented.

Another objective of the invention is to provide a food seasoning which, when used in the method according to the

invention, can provide the appropriate levels of a) sterol / stanol or a fatty acid derivative thereof, b) the minerals potassium, magnesium and calcium, in the ultimate food items.

#### Experimental results demonstrating the effectiveness of the invention

[0007] The genetically obese Zucker rat provides a suitable model for examining the effects of various dietary factors or drugs on, among other things, serum cholesterol, and blood pressure.

[0008] The effectiveness of the present invention was studied in Zucker rats. In the beginning of the study the rats were clearly obese and had reached an average body weight of 360 grams. The serum cholesterol level was 3.0 mmol/l and the blood pressure 125 mm Hg.

[0009] Group 1 (Control diet group): During the 14-day experimental period these 10 rats received a commercial diet containing all the essential nutrients, including adequate levels of the mineral elements sodium, potassium, magnesium, and calcium, to maintain normal body functions. To mimic current human diets, the diet also comprised 18 % of butter, 1 % of cholesterol and sodium chloride (common salt) at the level of 6 % of the dry weight of the diet.

During the following 2 weeks, the average serum cholesterol level in this group increased to the level of 10.5 mmol/l. The blood pressure increased by an average of 4 mm Hg.

[0010] Group 2 (Plant sterol diet according to the prior art): This group of 10 Zucker rats received a diet in which the caloric and other content of diet was otherwise exactly the same as in Group 1, but a mixture of the plant sterols (75 % of beta-sitosterol and 25 % of beta-sitostanol) was added to the diet at the level of 1 % of the dry weight of the chow. The average serum cholesterol level was reduced by 1.6 mmol/l (15 %) to the level of 8.9 mmol/l. The average rise of blood pressure was 4 mm Hg and, hence, similar to that in Group 1.

[0011] Group 3: (Diet with added calcium, magnesium and potassium): This group of 10 Zucker rats received a diet in which the caloric and other content of diet was otherwise exactly the same as in Group 1, but magnesium was added at the dietary level of 0.13 %, calcium at the level of 3 %, and potassium at the level of 1.57 %. These additions are higher than the existing dietary recommendations.

The serum cholesterol level was significantly lowered to an average level of 8.3 mmol/l ( $p < 0.05$ ). As compared to the cholesterol level in the control group (Group 1) the serum cholesterol level was reduced by 2.2 mmol/l (21 %). There was no change in the blood pressure level.

[0012] Group 4 (Combination of the additions of plant sterols as in Group 2 and calcium, magnesium and potassium as in Group 3): This group of 10 Zucker rats received a diet in which the caloric and other content of diet was otherwise exactly the same as in Group 1, but a mixture of the plant sterols (75 % of beta-sitosterol and 25 % of beta-sitostanol) was added to the diet at the level of 1 % of the dry weight of the chow, and magnesium was added at the dietary level of 0.13 %, calcium at the level of 3 %, and potassium at the level of 1.57 %.

[0013] The serum cholesterol level was dramatically lowered by this diet as compared with any other of the experimental groups ( $p < 0.001$ ). In this group the average serum cholesterol level was as low as 4.6 mmol/l. Hence this diet lowered serum cholesterol as much as 5.9 mmol/l (56.2 %).

Since the effect of the plant sterols in Group 1 was 1.6 mmol/l and that of the additions of calcium, magnesium, and potassium in Group 3 was 2.2 mmol/l, a larger cholesterol decrease was not to be expected than that caused by the sum of these two effects ( $1.6 \text{ mmol/l} + 2.2 \text{ mmol/l} = 3.8 \text{ mmol/l}$  or 36.2 %).

[0014] The actual decrease by the diet prepared according to the present invention was, however, remarkably (2.1 mmol/l or 20 %-units) more than the expected effect. Furthermore, quite unexpectedly the blood pressure was reduced by an average of 7 mm Hg, hence producing a beneficial difference of 11 mm Hg, as compared to the diet with added plant sterol (Group 2) and 7 mm Hg as compared to the diet with added calcium, magnesium and potassium. Therefore, even the beneficial effect on blood pressure was much larger than could be expected on the basis of the sum effect of added plant sterols alone, on the one hand, and added calcium, magnesium and potassium, on the other hand.

[0015] Hence, two different, important and unexpected advantages over the prior art were simultaneously produced by food prepared according to the present invention.

[0016] In the experiments described above, sodium was intentionally kept at a high level in the diet. In view of the important pathogenetic role of dietary sodium in arterial hypertension and various cardiovascular diseases it is, however, desirable to avoid excessive additions of sodium compounds. In fact, the present invention has the further advantage that it decreases the need to use salt (sodium chloride) and other sodium compounds so that, in comparison to food items in common use, a decreased sodium concentration in the ultimate edible food items is also achieved.

#### Description of the preferred embodiments

[0017] As the source of beta-sitosterol, beta-sitostanol, stigmasterol, stigmastanol, campesterol, campestanol, dihydrobrassicasterol, and dihydrobrassicastanol, said sterols and stanols herein after referred to as "plant sterol/stanol", it is possible to use in the method according to the present invention:

1) Naturally occurring plant sterols and stanols, particularly beta-sitosterol and beta-sitostanol but also stigmasterol, campesterol, and dihydrobrassicasterol concentrated or purified from tall oil, soy beans, rapeseeds, coconuts, corn, peanuts, or other natural sources. Methods previously published and generally known to those skilled in the art are applied to improve the solubility of "plant sterol/stanol" while incorporating these compounds in food ingredients, seasonings and food items according to the present invention. When plant concentrates with high concentrations of sterols are used, there is no need to remove such naturally occurring, accompanying compounds as phytoestrogens and flavonoids which, when left in the sterol concentrate, may even further enhance the beneficial health effects of the ultimate edible food items prepared according to the present invention. In fact, the present invention could serve as a suitable vehicle for supplementation of phytoestrogens, flavonoids, beta-carotene, vitamins A, D, and E as well as other vitamins, other mineral elements and other beneficial dietary factors, other active ingredients of natural origin, or even drugs.

2) It is also possible to use the hydrogenated forms of the aforementioned natural plant sterols, the so-called stanols.

3) Both the sterols and stanols can be used either as the unmodified parent compounds, or as their fatty acid esters if a good solubility in the fatty part of the food ingredients, seasoning mixtures, or the ultimate edible food items is desired.

**[0018]** As the source of the mineral element nutrient cations, in the method according to the present invention it is possible to use any physiologically acceptable magnesium, calcium, potassium, and sodium compound, as well as magnesium, calcium, potassium, and sodium bound in high concentrations naturally or artificially to dietary fibers.

**[0019]** Preferable magnesium compounds include, but are not limited to, in particular magnesium sulphate, magnesium chloride, magnesium hydroxide, magnesium oxide, and magnesium carbonate, but also many other compounds such as magnesium salts of amino acids, magnesium-rich dietary fibers and other physiologically acceptable magnesium compounds are possible.

**[0020]** Preferable calcium compounds include, but are not limited to, in particular calcium carbonate, calcium lactate, and calcium chloride, but also many other compounds such as calcium phosphates, calcium sulphate, calcium citrates, calcium tartrate, calcium acetate, calcium propionate, calcium alginate, calcium glutamate, calcium gluconate and other physiologically acceptable calcium compounds are possible.

**[0021]** Preferable potassium compounds include, but are not limited to, in particular potassium chloride, potassium (bi)carbonate, potassium lactate, and potassium sulphates, but also many other potassium compounds such as potassium phosphates, potassium tartrate, potassium acetate, potassium propionate, potassium alginate, potassium gluconate, potassium-rich dietary fibers, and other physiologically acceptable potassium compounds are possible.

**[0022]** Preferable sodium compounds include, but are not limited to, in particular sodium chloride, sodium glutamate, sodium lactate, and sodium (bi)carbonate, but also many other compounds such as sodium phosphates, sodium sulphates, sodium acetate, sodium citrate, sodium propionate, sodium tartrate, sodium alginate, sodium gluconate, and other physiologically acceptable sodium compounds are possible.

**[0023]** The method in accordance with the present invention can be used for changing the composition of a number of food items, such as, for example, bread, cookies and biscuit-like products; sausages and other meat products; egg foods, dairy products, baby foods, salad dressings, and also for novel seasoning compositions. Seasoning compositions according to the present invention can be used for the seasoning of, for example, such food items as bacon, eggs, miso and other soups, porridge meals, corn flakes, rice flakes, rice cakes, wheat flakes, oat flakes, rye flakes, barley flakes, and various types of "muesli". These may be prepared and seasoned according to conventional industrial practices, except that a part or all of the conventional seasonings and salt are replaced by the above described seasoning.

In most instances the conventional use of common salt can be entirely avoided by the use of the seasonings prepared according to the present invention.

**[0024]** Seasonings according to the present invention can also be used to replace common salt in a great variety of other industrially prepared food items as well as in the preparation of foods both in restaurants, catering, home kitchens etc. Such seasonings are particularly suitable for soups, beefs and other foods in which salty and/or spicy seasonings are used, for the preparation of various food ingredient mixtures, such as, for example, flour or meal and salt mixtures for the preparation of bread, muesli, corn and rice flakes and breakfast cereal products. These ingredient mixtures and seasonings, when added to various foods, change the food composition in accordance with the method of the present invention.

**[0025]** In the following, examples are given to demonstrate the preparation of food seasoning and food items according to the present invention. In these examples, "plant sterol/stanol" refers to the combined weight of beta-sitosterol, beta-sitostanol, stigmasterol, stigmasterol, campesterol, campestanol, dihydrobrassicasterol, and dihydrobrassicasterol.

nol, represented by the parent compound only, i.e., excluding the weight of the possible fatty acids esterified to the sterols and stanols.

# Example 1 WHITE BREAD

[0026] A pre-mix is made of the following formulation:

Sodium chloride	0.60 kg
"Plant sterol/stanol"	2.00 kg
Magnesium sulphate ( $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ )	0.126 kg
Magnesium hydroxide ( $\text{Mg}(\text{OH})_2$ )	0.020 kg
Calcium carbonate	0.080 kg
Potassium chloride	0.294 kg
1-lysine hydrochloride	0.021 kg
Wheat flour	7.500 kg

[0027] The following ingredients are added to the pre-mix, and a conventional white bread is made in a conventional commercial baking operation by the straight dough method:

Wheat flour	30.00 kg
Vital wheat gluten	0.37 kg
Promosoy 13 <sup>1</sup>	0.55 kg
Format <sup>2</sup>	0.50 kg
Shortening (vegetable oil)	1.12 kg
Yeast	1.75 kg
Water	23.75 kg

<sup>1</sup>Contains soy protein isolate, non-fat dry milk and emulgators (Engelhardt & Co., Sweden)

<sup>2</sup>Contains diacetyl tartaric acid esters,  $\text{CaCO}_3$  and ascorbic acid with malt flour and sugar (Treks Arkady, Germany)

[0028] The formulation, containing all the ingredients, is mixed at low speed, dough temperature 27 °C, floor time 30 min, baked in the form of Pullman loaves, fermentation ca. 40 min at 38-40 °C and 80 % relative humidity, baked for 30 min at an oven temperature of 230 °C. This is a good, commercial quality, standard white bread.

# Example 2. RYE BREAD

[0029] A pre-mix is made of the following formulation:

Sodium chloride	0.60 kg
"Plant sterol/stanol"	2.00 kg
Magnesium sulphate ( $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ )	0.126 kg
Magnesium hydroxide ( $\text{Mg}(\text{OH})_2$ )	0.020 kg
Calcium carbonate	0.080 kg
Potassium chloride	0.294 kg
1-lysine hydrochloride	0.021 kg
Rye meal <sup>1</sup>	9.57 kg

[0030] The following ingredients are added to the pre-mix, and a conventional sour rye bread is made in a conventional commercial baking operation:

Rye meal <sup>1</sup>	20.00 kg
Vital wheat gluten	0.64 kg
Coarse rye meal	5.71 kg

<sup>1</sup>Part of rye meal and water are fermented with natural starter overnight, final pH 3.9.

(continued)

Wheat flour	10.00 kg
Yeast	0.67 kg
Water	33.37 kg

[0031] The formulation, containing all the ingredients, is mixed for 7 min at low speed, dough temperature 27 °C, dough pH 4.4, floor time 60 min, baked in the form of Pullman loaves, fermentation ca. 40 min at 38-40 °C and 70 % relative humidity, baked for 37 min at an oven temperature of 230 °C.

This is a good, commercial quality, standard sour rye bread.

Preferably, the concentrations by weight of plant sterol/stanol or derivatives thereof, and of the advantageous mineral elements in the final bread products made by the method according to the present invention are: Sterol 0.1-8 %, Mg 0.01 - 1 %, Ca 0.01 - 1 %, and K 0.1 - 1.5%.

### Example 3. MARINADE

[0032] A marinade for various types of meats, fish and vegetables is made in a conventional commercial operation from the following formulation.

Vegetable oil	0.7680 kg
"Plant sterol/stanol"	0.1440 kg
Calcium chloride ( $\text{CaCl}_2 \cdot 6\text{H}_2\text{O}$ )	0.0023 kg
Magnesium sulphate ( $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ )	0.0023 kg
Potassium chloride (KCl)	0.0054 kg
Sodium chloride (NaCl)	0.0109 kg
1-Lysine hydrochloride	0.0004 kg
Honey	0.0288 kg
Vinegar (10 weight %)	0.0288 kg
Spices	0.0096 kg

[0033] The "Plant sterol/stanol" is first mixed with the vegetable oil. Calcium chloride, magnesium sulphate, potassium chloride, sodium chloride, 1-lysine hydrochloride and honey are mixed with vinegar, and the mixture and the spices are added to the mixture of the vegetable oil and "Plant sterol/stanol". All the ingredients are mixed thoroughly.

[0034] Preferably, the concentrations by weight of plant sterol/stanol or derivatives thereof, and of the advantageous mineral elements in the marinades made by the method according to the present invention are: Sterol 0.5 - 18 %, Mg 0 - 1 %, Ca 0 - 1 %, and K 0 - 2.5 %.

### Example 4. SEASONING

[0035] A mechanical mixture of the following formulation is made:

"Plant sterol/stanol"	2.12 kg
Calcium carbonate ( $\text{CaCO}_3$ )	3.80 kg
Magnesium sulphate ( $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ )	0.910 kg
Potassium chloride (KCl)	2.12 kg
Sodium chloride (NaCl)	4.32 kg
Sodium glutamate	0.40 kg
1-Lysine hydrochloride	0.15 kg
(Spices; optional)	1.00 kg

[0036] All the ingredients are mixed thoroughly with a conventional industrial mixer but taking care that excessive heat is not formed during the process.

Preferably, the concentrations by weight of plant sterol/stanol or derivatives thereof, and of the advantageous mineral elements in the final seasoning made by the method according to the present invention are: Sterol 2 - 98 %, Mg 0 - 30 %, Ca 0 - 30 %, and K 0 - 50 %.

## Example 5. SAUSAGE

[0037] A pre-mix of the following formulation is made:

"Plant sterol/stanol"	0.270 kg
Calcium chloride ( $\text{CaCl}_2 \cdot 6\text{H}_2\text{O}$ )	0.057 kg
Magnesium sulphate ( $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ )	0.057 kg
Potassium chloride (KCl)	0.132 kg
Potassium lactate	0.090 kg
Sodium chloride (NaCl)	0.270 kg
Sodium lactate	0.090 kg
1-Lysine hydrochloride	0.010 kg

[0038] This pre-mix is thoroughly mixed with the following ingredients:

Meat, including natural fat	12.500 kg
Milk powder	0.840 kg
Potatoe starch	1.160 kg
Water	6.450 kg
Sodium nitrite ( $\text{NaNO}_2$ , 10 % solution)	0.030 kg
Spices	0.085 kg

[0039] The sausage is processed according to generally known conventional industrial techniques.

## Example 6. MINCEMEAT STEAK (HAMBURGER STEAK)

[0040]

Minced meat	9.67 kg
"Plant sterol/stanol"	0.07 kg
Seasoning of example 4 (with spices)	0.26 kg

[0041] The plant sterol and the seasoning are mixed with the minced meat. Thereafter the mincemeat steak is prepared according to the processes conventionally used in the preparation of steaks, e.g for hamburger restaurants. One serving is a 200 gram steak.

## Example 7. STEAK OF MINCED FISH

[0042]

Minced fish	9.67 kg
"Plant sterol/stanol"	0.07 kg
Seasoning of example 4 (with spices)	0.26 kg

[0043] The plant sterol and the seasoning are mixed with the minced fish. Thereafter the steak of minced fish is prepared according to the processes conventionally used in the preparation of steaks for hamburger restaurants. One serving is a 200 gram steak.

## Example 8. SOY STEAK

[0044]

Soy protein mixture	9.67 kg
"Plant sterol/stanol"	0.07 kg

(continued)

Seasoning of example 4 (with spices)	0.26 kg
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[0045] The plant sterol and the seasoning are mixed with the soy protein mixture conventionally used for the preparation of soy steaks. Thereafter the steak is prepared according to the processes conventionally used in the preparation of soy steaks. One serving is a 200 gram steak. Preferably, the concentrations by weight of plant sterol/stanol or derivatives thereof, and of the advantageous mineral elements in the final sausage or steak products made by the method according to the present invention are: Sterol 0.1 - 10 %, Mg 0.01 - 1.5 %, Ca 0.01-1.5 %, and K 0.1 - 1.5%.

Example 9. MAYONNAISE

[0046]

Vegetable oil	0.650 kg
"Plant sterol/stanol"	0.065 kg
Calcium chloride ( $\text{CaCl}_2 \cdot 6\text{H}_2\text{O}$ )	0.0012 kg
Magnesium sulphate ( $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ )	0.0012 kg
Potassium chloride (KCl)	0.0028 kg
Sodium chloride (NaCl)	0.0057 kg
1-Lysine hydrochloride	0.0002 kg
Sugar	0.030 kg
Vinegar (10 weight %)	0.030 kg
Mustard	0.020 kg
Water	0.194 kg

[0047] The mayonnaise is prepared by homogenization by conventional industrial methods. Preferably, the concentrations by weight of plant sterol/stanol or derivatives thereof, and of the advantageous mineral elements in the final mayonnaise made by the method according to the present invention are: Sterol 0.5 - 15 %, Mg 0 - 3 %, Ca 0 - 3 %, and K 0 - 3 %.

Example 10. MIXTURE OF VEGETABLE OIL AND BUTTER

[0048]

Vegetable oil	0.350 kg
"Plant sterol/stanol"	0.150 kg
Butter	0.478 kg
Calcium chloride ( $\text{CaCl}_2 \cdot 6\text{H}_2\text{O}$ )	0.0024 kg
Magnesium sulphate ( $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ )	0.0024 kg
Potassium chloride (KCl)	0.0056 kg
Sodium chloride (NaCl)	0.0114 kg
1-Lysine hydrochloride	0.0004 kg

[0049] The plant sterol is added to the vegetable oil and mixed thoroughly. Thereafter this mixture and the other ingredients are added to the butter and mixed according to conventional dairy practice to make the mixture of vegetable oil and butter.

Preferably, the concentrations by weight of plant sterol/stanol or derivatives thereof, and of the advantageous mineral elements in the final vegetable oil/butter products made by the method according to the present invention are: Sterol 0.5 - 15 %, Mg 0 - 0.4 %, Ca 0 - 1 %, and K 0 - 1.5%.



## Example 11. SALAD DRESSING

[0050]

Vegetable oil	2.0000 kg
"Plant sterol/stanol"	0.2000 kg
Calcium chloride ( $\text{CaCl}_2 \cdot 6\text{H}_2\text{O}$ )	0.0048 kg
Magnesium sulphate ( $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ )	0.0048 kg
Potassium chloride (KCl)	0.0112 kg
Sodium chloride (NaCl)	0.0228 kg
1-Lysine hydrochloride	0.0008 kg
Vinegar (10 weight %)	1.1200 kg
Water	1.6360 kg

[0051] The salad dressing is prepared by homogenization by conventional industrial methods. Preferably, the concentrations by weight of plant sterol/stanol or derivatives thereof, and of the advantageous mineral elements in the final salad dressing made by the method according to the present invention are: Sterol 0.5 - 8 %, Mg 0 - 3 %, Ca 0 - 3 %, and K 0 - 3 %.

## Example 12 YOGURT

[0052] During the preparation of 100 kg of yogurt according to conventional commercial techniques the following ingredients are added and carefully mixed:

"Plant sterol/stanol"	1.000 kg
Magnesium oxide (MgO)	0.225 kg

[0053] Preferably, the concentrations by weight of plant sterol/stanol or derivatives thereof, and of the advantageous mineral elements in the final yogurt made by the method according to the present invention are: Sterol 0.2 - 10 %, Mg 0.01 - 3 %, Ca 0.1 - 3 %, and K 0.1 - 3 %.

## Claims

1. A method of producing food seasoning, food ingredient and/or food item compositions capable of decreasing elevated serum cholesterol and lowering elevated blood pressure, comprising providing in said composition an increased level of plant sterol/stanol and an increased level of mineral element nutrient, said sterol/stanol comprising at least one plant sterol or plant sterol derivative selected from the group consisting of beta-sitosterol, stigmasterol, campesterol, dihydrobrassicasterol, and/or the hardened stanol forms of said sterols, and/or fatty acid esters of said sterols and stanols, and said mineral element nutrient comprising at least one selected from the group consisting of magnesium, calcium, and potassium.
2. A method according to claim 1, wherein the plant sterol/stanol has been concentrated or purified from a natural plant sterol source.
3. A method according to claim 2, wherein said plant sterol/stanol comprises beta-sitosterol, beta-sitosterol or a mixture thereof.
4. A method according to any claim 1 - 3, comprising incorporating in said composition at least one plant sterol/stanol so as to produce an increase of 1 % or more of plant sterol/stanol in the dry weight of the diet.
5. A method according to claim 1, wherein increased levels of magnesium and calcium are provided in said composition.
6. A method according to claim 5, wherein additionally an increased level of potassium is provided in said composition.

7. A method according to claim 1, wherein an increased level of magnesium is provided by incorporating in said composition a magnesium compound selected from the group consisting of magnesium sulphate, magnesium chloride, magnesium hydroxide, magnesium oxide, magnesium carbonate, amino acid magnesium salts and mixtures thereof.
8. A method according to claim 1, wherein an increased level of calcium is provided by incorporating in said composition a calcium compound selected from the group consisting of calcium phosphates, calcium carbonate, calcium sulphate, calcium chloride, calcium lactate, calcium citrates, calcium acetate, calcium propionate, calcium tartrate, calcium alginate, calcium gluconate, calcium glutamate and mixtures thereof.
9. A method according to claim 1, wherein an increased level of potassium is provided by incorporating in said composition a potassium compound selected from the group consisting of potassium phosphates, potassium carbonate, potassium bicarbonate, potassium sulphate, potassium chloride, potassium lactate, potassium acetate, potassium propionate, potassium tartrate, potassium alginate, potassium gluconate and mixtures thereof.
10. A method according to any claim 1-9, comprising providing in said composition a decreased level of sodium chloride.
11. A method according to claim 1 comprising incorporating in a bread, cookie or bisquit like food an increased level of plant sterol/stanol and an increased level of at least one of magnesium, calcium and potassium, said increased levels being sufficient for providing in the ultimate food a plant sterol/stanol concentration by weight between 0.1 and 8 %, a magnesium concentration between 0.01 and 1 %, a calcium concentration between 0.01 and 1 and a potassium concentration between 0.1 and 1.5 %.
12. A method according to claim 11 wherein said plant sterol/stanol concentration by weight is at least 2.4 %, said magnesium concentration is at least 0.024 % by weight, said calcium concentration is at least 0.038 % by weight and said potassium concentration is at least 0.19 % by weight.
13. A method according to claim 1, comprising incorporating in a sausage or mincemeat product an increased level of plant sterol/stanol and at least one of magnesium, calcium and potassium, said increased levels being sufficient for providing in the ultimate food a plant sterol or plant sterol derivative concentration by weight of between 0.1 and 10 %, a magnesium concentration of between 0.01 and 1.5 %, a calcium concentration of between 0.01 and 1.5 %, and a potassium concentration of between 0.1 and 1.5 %.
14. A method according to claim 13 wherein said plant sterol/stanol concentration by weight is at least 1 %, said magnesium concentration is at least 0.016 % by weight, said calcium concentration is at least 0.050 % by weight and said potassium concentration is at least 0.20 % by weight.
15. A method according to claim 1, comprising incorporating in a vegetable oil-butter mixture an increased level of plant sterol/stanol and at least one of magnesium, calcium and potassium, said increased levels being sufficient for providing in the ultimate mixture a plant sterol or plant sterol derivative concentration by weight of between 0.5 and 15 %, a magnesium concentration of between 0 and 0.4 %, a calcium concentration of between 0 and 1 %, and a potassium concentration of between 0 and 1 %.
16. A method according to claim 15 wherein said plant sterol/stanol concentration by weight is at least 0.5 %, said magnesium concentration is at least 0.024 % by weight, said calcium concentration is at least 0.044 % by weight and said potassium concentration is at least 0.29 % by weight.
17. A method according to claim 1 comprising incorporating in a marinade an increased level of plant sterol/stanol and at least one of magnesium, calcium and potassium, said increased levels being sufficient for providing in the ultimate marinade a plant sterol or plant sterol derivative concentration by weight of between 0.5 and 18 %, a magnesium concentration of between 0 and 1 %, a calcium concentration of between 0 and 1 %, and a potassium concentration of between 0 and 2.5 %.
18. A method according to claim 17 wherein said plant sterol/stanol concentration by weight is at least 0.5 %, said magnesium concentration is at least 0.020 % by weight, said calcium concentration is at least 0.040 % by weight and said potassium concentration is at least 0.28 % by weight.

19. A method according to claim 1 comprising incorporating in a salad dressing an increased level of plant sterol/stanol and at least one of magnesium calcium and potassium, said increased levels being sufficient for providing in the ultimate food a plant sterol or plant sterol derivative concentration by weight of between 0.5 and 8 %, a magnesium concentration of between 0 and 3 %, a calcium concentration of between 0 and 3 %, and a potassium concentration of between 0 and 3 %.
20. A method according to claim 19 wherein said plant sterol/stanol concentration by weight is at least 0.5 %, said magnesium concentration is at least 0.012 % by weight, said calcium concentration is at least 0.022 % by weight and said potassium concentration is at least 0.15 % by weight.
21. A method according to claim 1 comprising incorporating in a mayonnaise an increased level of plant sterol/stanol and at least one of magnesium, calcium and potassium, said increased levels being sufficient for providing in the ultimate mayonnaise a plant sterol or plant sterol derivative concentration by weight of between 0.5 and 15 %, a magnesium concentration of between 0 and 3 %, a calcium concentration of between 0 and 3 %, and a potassium concentration of between 0 and 3 %.
22. A method according to claim 21 wherein said plant sterol/stanol concentration by weight is at least 0.5 %, said magnesium concentration is at least 0.012 % by weight, said calcium concentration is at least 0.022 % by weight and said potassium concentration is at least 0.15 % by weight.
23. A method according to claim 1 comprising incorporating in a yogurt an increased level of plant sterol/stanol and at least one of magnesium, calcium and potassium, said increased levels being sufficient for providing in the ultimate yogurt a plant sterol or plant sterol derivative concentration by weight of between 0.2 and 10 %, a magnesium concentration of between 0.1 and 3 %, a calcium concentration of between 0.1 and 3 %, and a potassium concentration of between 0.1 and 3 %.
24. A method according to claim 23 wherein said magnesium concentration is at least 0.14 % by weight.
25. A method according to claim 1 comprising incorporating in a food seasoning a plant sterol or plant sterol derivative and at least one of magnesium, calcium, and potassium in an amount providing in the seasoning a plant sterol or plant sterol derivative concentration by weight of between 2 and 98 %, a magnesium concentration of between 0 and 30 %, a calcium concentration of between 0 and 30 %, and a potassium concentration of between 0 and 50 %.
26. A method according to claim 25 wherein said plant sterol/stanol concentration by weight is at least 2 %, said magnesium concentration is at least 10.3 % by weight, said calcium concentration is at least 0.61 % by weight and said potassium concentration is at least 7.5 % by weight.
27. The use of a food seasoning produced according to claim 25 or 26 in food ingredients or food items.
28. A food seasoning, food ingredient and /or food composition capable of decreasing elevated serum cholesterol and lowering elevated blood pressure, said composition comprising an increased level of at least one plant sterol/stanol selected from the group consisting of beta-sitosterol, stigmasterol, campesterol, dihydrobrassicasterol, the hydrogenated stanol forms of said sterols, fatty acid esters of said sterols and stanols and mixtures thereof; and an increased level of at least one mineral element nutrient selected from the group consisting of magnesium, calcium, potassium and mixtures thereof.
29. A composition according to claim 28 wherein said plant sterol/stanol has been concentrated or purified from natural plant sterol sources.
30. A composition according to claim 29, wherein said plant sterol/stanol comprises beta-sitosterol, beta-sitostanol or a mixture thereof.
31. A composition according to any claim 28-30, wherein increased levels of magnesium and calcium are included in said composition.
32. A composition according to claim 31, wherein additionally an increased level of potassium is included in said composition.

33. A composition according to claim 28, wherein said increased level of magnesium is included as at least one magnesium compound selected from the group consisting of magnesium sulphate, magnesium chloride, magnesium hydroxide, magnesium oxide, magnesium carbonate, and amino acid magnesium salts.
34. A composition according to claim 28, wherein said increased level of calcium is included as at least one calcium compound selected from the group consisting of calcium phosphates, calcium carbonate, calcium sulphate, calcium chloride, calcium lactate, calcium citrates, calcium acetate, calcium propionate, calcium tartrate, calcium alginate, calcium gluconate, and calcium glutamate.
35. A composition according to claim 28, wherein said increased level of potassium is included as at least one potassium compound selected from the group consisting of potassium phosphates, potassium carbonate, potassium bicarbonate, potassium sulphate, potassium chloride, potassium lactate, potassium acetate, potassium propionate, potassium tartrate, potassium alginate and potassium gluconate.
36. A composition according to any claim 28-35, wherein a decreased levels of sodium is included in said composition.
37. A bread, cookie or bisquit like food product having an increased level of plant sterol/stanol and an increased level of at least one of magnesium, calcium and potassium, said increased levels being sufficient for providing in the ultimate food a plant sterol/stanol concentration by weight between 0.1 and 8 %, a magnesium concentration between 0.01 and 1 %, a calcium concentration between 0.01 and 1 and a potassium concentration between 0.1 and 1.5 %.
38. A food product according to claim 37, wherein said plant sterol/stanol concentration by weight is at least 2.4 %, said magnesium concentration is at least 0.024 % by weight, said calcium concentration is at least 0.038 % by weight and said potassium concentration is at least 0.19 % by weight.
39. A sausage or mincemeat product having an increased level of plant sterol/stanol and at least one of magnesium, calcium and potassium, said increased levels being sufficient for providing in the ultimate food a plant sterol or plant sterol derivative concentration by weight of between 0.1 and 10 %, a magnesium concentration of between 0.01 and 1.5 %, a calcium concentration of between 0.01 and 1.5 %, and a potassium concentration of between 0.1 and 1.5 %.
40. A product according to claim 39, wherein said plant sterol/stanol concentration by weight is at least 1 %, said magnesium concentration is at least 0.016 % by weight, said calcium concentration is at least 0.050 % by weight and said potassium concentration is at least 0.20 % by weight.
41. A vegetable oil-butter mixture having an increased level of plant sterol/stanol and at least one of magnesium, calcium and potassium, said increased levels being sufficient for providing in the ultimate mixture a plant sterol or plant sterol derivative concentration by weight of between 0.5 and 15 %, a magnesium concentration of between 0 and 0.4 %, a calcium concentration of between 0 and 1 %, and a potassium concentration of between 0 and 1 %.
42. A mixture according to claim 41, wherein said plant sterol/stanol concentration by weight is at least 0.5 %, said magnesium concentration is at least 0.024 % by weight, said calcium concentration is at least 0.044 % by weight and said potassium concentration is at least 0.29 % by weight.
43. A marinade having an increased level of plant sterol/stanol and at least one of magnesium, calcium and potassium, said increased levels being sufficient for providing in the ultimate marinade a plant sterol or plant sterol derivative concentration by weight of between 0.5 and 18 %, a magnesium concentration of between 0 and 1 %, a calcium concentration of between 0 and 1 %, and a potassium concentration of between 0 and 2.5 %.
44. A marinade according to claim 43, wherein said plant sterol/stanol concentration by weight is at least 0.5 %, said magnesium concentration is at least 0.020 % by weight, said calcium concentration is at least 0.040 % by weight and said potassium concentration is at least 0.28 % by weight.
45. A salad dressing having an increased level of plant sterol/stanol and at least one of magnesium, calcium and potassium, said increased levels being sufficient for providing in the ultimate food a plant sterol or plant sterol derivative concentration by weight of between 0.5 and 8 %, a magnesium concentration of between 0 and 3 %, a calcium concentration of between 0 and 3 %, and a potassium concentration of between 0 and 3 %.

46. A salad dressing according to claim 45, wherein said plant sterol/stanol concentration by weight is at least 0.5 %, said magnesium concentration is at least 0.012 % by weight, said calcium concentration is at least 0.022 % by weight and said potassium concentration is at least 0.15 % by weight.
- 5 47. A mayonnaise having an increased level of plant sterol/stanol and at least one of magnesium, calcium and potassium, said increased levels being sufficient for providing in the ultimate mayonnaise a plant sterol or plant sterol derivative concentration by weight of between 0.5 and 15 %, a magnesium concentration of between 0 and 3 %, a calcium concentration of between 0 and 3 %, and a potassium concentration of between 0 and 3 %.
- 10 48. A mayonnaise according to claim 47, wherein said plant sterol/stanol concentration by weight is at least 0.5 %, said magnesium concentration is at least 0.012 % by weight, said calcium concentration is at least 0.022 % by weight and said potassium concentration is at least 0.15 % by weight.
49. A yogurt having an increased level of plant sterol/stanol and at least one of magnesium, calcium and potassium, said increased levels being sufficient for providing in the ultimate yogurt a plant sterol or plant sterol derivative concentration by weight of between 0.2 and 10 %, a magnesium concentration of between 0.01 and 3 %, a calcium concentration of between 0.1 and 3 %, and a potassium concentration of between 0.1 and 3 %.
- 15 50. A yogurt according to claim 49, wherein said magnesium concentration is at least 0.14 %.
- 20 51. A food seasoning having an increased level of plant sterol or plant sterol derivative and at least one of magnesium, calcium, and potassium in an amount providing in the seasoning a plant sterol or plant sterol derivative concentration by weight of between 2 and 98 %, a magnesium concentration of between 0 and 30 %, a calcium concentration of between 0 and 30 %, and a potassium concentration of between 0 and 50 %.
- 25 52. A food seasoning according to claim 51 wherein said plant sterol/stanol concentration by weight is at least 2 %, said magnesium concentration is at least 10.3 % by weight, said calcium concentration is at least 0.61 % by weight and said potassium concentration is at least 7.5 % by weight.

# **Patentansprüche**

1. Verfahren zur Herstellung von Lebensmittelgewürz-, Lebensmittelzutat- und/oder Lebensmittelartikelzusammensetzungen, die einen erhöhten Cholesterinspiegel im Serum und einen erhöhten Blutdruck senken können, umfassend die Bereitstellung in der Zusammensetzung einer erhöhten Konzentration an Pflanzensterol/-stanol und einer erhöhten Konzentration an elementarem Mineralnährstoff, wobei das Sterol/Stanol mindestens ein Pflanzensterol oder Pflanzensterolderivat, ausgewählt aus beta-Sitosterol, Stigmasterol, Campesterol, Dihydrobrassicasterol und/oder den gehärteten Stanolformen der Sterole, und/oder Fettsäureestern der Sterole oder Stanole umfasst, und der elementare Mineralnährstoff mindestens einen umfasst der ausgewählt ist aus Magnesium, Calcium und Kalium.
2. Verfahren gemäß Anspruch 1, wobei das Pflanzensterol/-stanol aus einer natürlichen Pflanzensterolquelle angereichert oder gereinigt worden ist.
3. Verfahren gemäß Anspruch 2, wobei das Pflanzensterol/-stanol beta-Sitosterol, beta-Sitostanol oder ein Gemisch davon umfasst.
4. Verfahren gemäß einem der Ansprüche 1 bis 3, umfassend den Einschluss in die Zusammensetzung mindestens eines Pflanzensterols/-stanols, um einen Anstieg an Pflanzensterol/-stanol von 1 % oder mehr im Trockengewicht der Nahrung zu bewirken.
5. Verfahren gemäß Anspruch 1, wobei erhöhte Magnesium- und Calciumkonzentrationen in der Zusammensetzung bereitgestellt werden.
- 55 6. Verfahren gemäß Anspruch 5, wobei zusätzlich eine erhöhte Kaliumkonzentration in der Zusammensetzung bereitgestellt wird.
7. Verfahren gemäß Anspruch 1, wobei eine erhöhte Magnesiumkonzentration durch Einschluss einer Magnesium-

verbindung, ausgewählt aus Magnesiumsulfat, Magnesiumchlorid, Magnesiumhydroxid, Magnesiumoxid, Magnesiumcarbonat, Aminosäuremagnesiumsalzen und Gemischen davon, in die Zusammensetzung bereitgestellt wird.

8. Verfahren gemäß Anspruch 1, wobei eine erhöhte Calciumkonzentration durch Einschluss einer Calciumverbindung, ausgewählt aus Calciumphosphaten, Calciumcarbonat, Calciumsulfat, Calciumchlorid, Calciumlactat, Calciumcitrat, Calciumacetat, Calciumpropionat, Calciumtartrat, Calciumalginat, Calciumgluconat, Calciumglutamat und Gemischen davon, in die Zusammensetzung bereitgestellt wird.
9. Verfahren gemäß Anspruch 1, wobei eine erhöhte Kaliumkonzentration durch Einschluss einer Kaliumverbindung, ausgewählt aus Kaliumphosphaten, Kaliumcarbonat, Kaliumbicarbonat, Kaliumsulfat, Kaliumchlorid, Kaliumlactat, Kaliumacetat, Kaliumpropionat, Kaliumtartrat, Kaliumalginat, Kaliumgluconat und Gemischen davon, in die Zusammensetzung bereitgestellt wird.
10. Verfahren gemäß einem der Ansprüche 1 bis 9, umfassend das Bereitstellen einer verringerten Natriumchloridkonzentration in der Zusammensetzung.
11. Verfahren gemäß Anspruch 1, umfassend den Einschluss in brot-, keks- oder plätzchenähnlichen Lebensmitteln einer erhöhten Konzentration an Pflanzensterol/stanol und einer erhöhten Konzentration mindestens eines aus Magnesium, Calcium und Kalium, wobei die erhöhten Konzentrationen ausreichend sind, um in dem Endnahrungsmittel eine Pflanzensterol/-stanolkonzentration zwischen 0,1 und 8 Gewichtsprozent, eine Magnesiumkonzentration zwischen 0,01 und 1 Gew.-%, eine Calciumkonzentration zwischen 0,01 und 1 Gew.-%, und eine Kaliumkonzentration zwischen 0,1 und 1,5 Gew.-% bereitzustellen.
12. Verfahren gemäß Anspruch 11, wobei die Pflanzensterol/-stanolkonzentration mindestens 2,4 Gewichtsprozent, die Magnesiumkonzentration mindestens 0,024 Gew.-%, die Calciumkonzentration mindestens 0,038 Gew.-% und die Kaliumkonzentration mindestens 0,19 Gew.-% beträgt.
13. Verfahren gemäß Anspruch 1, umfassend den Einschluss in Würstchen- oder Hackfleischprodukte einer erhöhten Konzentration an Pflanzensterol/-stanol und mindestens eines aus Magnesium, Calcium und Kalium, wobei die erhöhten Konzentrationen ausreichen, um in dem Endnahrungsmittel eine Pflanzensterol- oder Pflanzensterolderivatkonzentration zwischen 0,1 und 10 Gewichtsprozent, eine Magnesiumkonzentration zwischen 0,01 und 1,5 Gew.-%, eine Calciumkonzentration zwischen 0,01 und 1,5 Gew.-% und eine Kaliumkonzentration zwischen 0,1 und 1,5 Gew.-% bereitzustellen.
14. Verfahren gemäß Anspruch 13, wobei die Pflanzensterol/-stanolkonzentration mindestens 1 Gewichtsprozent, die Magnesiumkonzentration mindestens 0,016 Gew.-%, die Calciumkonzentration mindestens 0,050 Gew.-% und die Kaliumkonzentration mindestens 0,20 Gew.-% beträgt.
15. Verfahren gemäß Anspruch 1, umfassend den Einschluss in ein Pflanzenöl-Butter-Gemisch einer erhöhten Konzentration an Pflanzensterol/-stanol und mindestens eines aus Magnesium, Calcium und Kalium, wobei die erhöhten Konzentrationen ausreichen, um in dem am Ende erhaltenen Gemisch eine Pflanzensterol- oder Pflanzensterolderivatkonzentration zwischen 0,5 und 15 Gewichtsprozent, eine Magnesiumkonzentration zwischen 0 und 0,4 Gew.-%, eine Calciumkonzentration zwischen 0 und 1 Gew.-% und eine Kaliumkonzentration zwischen 0 und 1 Gew.-% bereitzustellen.
16. Verfahren gemäß Anspruch 15, wobei die Pflanzensterol/-stanolkonzentration mindestens 0,5 Gewichtsprozent, die Magnesiumkonzentration mindestens 0,024 Gew.-%, die Calciumkonzentration mindestens 0,044 Gew.-% und die Kaliumkonzentration mindestens 0,29 Gew.-% beträgt.
17. Verfahren gemäß Anspruch 1, umfassend den Einschluss in eine Marinade einer erhöhten Konzentration an Pflanzensterol/-stanol und mindestens eines aus Magnesium, Calcium und Kalium, wobei die erhöhten Konzentrationen ausreichen, um in der am Ende erhaltenen Marinade eine Pflanzensterol- oder Pflanzensterolderivatkonzentration zwischen 0,5 und 18 Gewichtsprozent, eine Magnesiumkonzentration zwischen 0 und 1 Gew.-%, eine Calciumkonzentration zwischen 0 und 1 Gew.-% und eine Kaliumkonzentration zwischen 0 und 2,5 Gew.-% bereitzustellen.
18. Verfahren gemäß Anspruch 17, wobei die Pflanzensterol/-stanolkonzentration mindestens 0,5 Gewichtsprozent, die Magnesiumkonzentration mindestens 0,020 Gew.-%, die Calciumkonzentration mindestens 0,040 Gew.-% und die Kaliumkonzentration mindestens 0,28 Gew.-% beträgt.

19. Verfahren gemäß Anspruch 1, umfassend den Einschluss in eine Salatsoße einer erhöhten Konzentration an Pflanzensterol/-stanol und mindestens eines aus Magnesium, Calcium und Kalium, wobei die erhöhten Konzentrationen ausreichen, um in dem am Ende erhaltenen Lebensmittel eine Pflanzensterol- oder Pflanzensterolderivatkonzentration zwischen 0,5 und 8 Gewichtsprozent, eine Magnesiumkonzentration zwischen 0 und 3 Gew.-%, eine Calciumkonzentration zwischen 0 und 3 Gew.-% und eine Kaliumkonzentration zwischen 0 und 3 Gew.-% bereitzustellen.
20. Verfahren gemäß Anspruch 19, wobei die Pflanzensterol/-stanolkonzentration mindestens 0,5 Gewichtsprozent, die Magnesiumkonzentration mindestens 0,012 Gew.-%, die Calciumkonzentration mindestens 0,022 Gew.-% und die Kaliumkonzentration mindestens 0,15% beträgt.
21. Verfahren gemäß Anspruch 1, umfassend den Einschluss in eine Mayonnaise einer erhöhten Konzentration an Pflanzensterol/-stanol und mindestens eines aus Magnesium, Calcium und Kalium, wobei die erhöhten Konzentrationen ausreichen, um in der am Ende erhaltenen Mayonnaise eine Pflanzensterol- oder Pflanzensterolderivatkonzentration zwischen 0,5 und 15 Gewichtsprozent, eine Magnesiumkonzentration zwischen 0 und 3 Gew.-%, eine Calciumkonzentration zwischen 0 und 3 Gew.-% und eine Kaliumkonzentration zwischen 0 und 3 Gew.-% bereitzustellen.
22. Verfahren gemäß Anspruch 21, wobei die Pflanzensterol/-stanolkonzentration mindestens 0,5 Gewichtsprozent, die Magnesiumkonzentration mindestens 0,012 Gew.-%, die Calciumkonzentration mindestens 0,022 Gew.-% und die Kaliumkonzentration mindestens 0,15 Gew.-% beträgt.
23. Verfahren gemäß Anspruch 1, umfassend den Einschluss in ein Joghurt einer erhöhten Konzentration an Pflanzensterol/-stanol und mindestens eines aus Magnesium, Calcium und Kalium, wobei die erhöhten Konzentrationen ausreichen, um in dem am Ende erhaltenen Joghurt eine Pflanzensterol- oder Pflanzensterolderivatkonzentration zwischen 0,2 und 10 Gewichtsprozent, eine Magnesiumkonzentration zwischen 0,1 und 3 Gew.-%, eine Calciumkonzentration zwischen 0,1 und 3 Gew.-% und eine Kaliumkonzentration zwischen 0,1 und 3 Gew.-% bereitzustellen.
24. Verfahren gemäß Anspruch 23, wobei die Magnesiumkonzentration mindestens 0,14 Gewichtsprozent beträgt.
25. Verfahren gemäß Anspruch 1, umfassend den Einschluss in ein Lebensmittelgewürz eines Pflanzensterols oder Pflanzensterolderivats und mindestens eines aus Magnesium, Calcium und Kalium, in einer solchen Menge, dass im Gewürz eine Pflanzensterol oder Pflanzensterolderivatkonzentration zwischen 2 und 98 Gewichtsprozent, eine Magnesiumkonzentration zwischen 0 und 30 Gew.-%, eine Calciumkonzentration zwischen 0 und 30 Gew.-% und eine Kaliumkonzentration zwischen 0 und 50 Gew.-% bereitgestellt wird.
26. Verfahren gemäß Anspruch 25, wobei die erwähnte Pflanzensterol/-stanolkonzentration mindestens 2 Gewichtsprozent, die Magnesiumkonzentration mindestens 10,3 Gew.-%, die Calciumkonzentration mindestens 0,61 Gew.-% und die Kaliumkonzentration mindestens 7,5 Gew.-% beträgt.
27. Verwendung eines gemäß Anspruch 25 oder 26 hergestellten Lebensmittelgewürzes in Lebensmittelzutaten oder Lebensmittelartikeln.
28. Lebensmittelgewürz-, Lebensmittelzutat- und/oder Lebensmittelzusammensetzung, die einen erhöhten Cholesterinspiegel im Serum und erhöhten Blutdruck senken können, wobei die Zusammensetzung eine erhöhte Konzentration mindestens eines Pflanzensterol/-stanols, ausgewählt aus beta-Sitosterol, Stigmasterol, Campesterol, Dihydrobrassicasterol, den hydrierten Stanolformen der Sterole, Fettsäureestern der Sterole und Stanole und Gemischen davon; und eine erhöhte Konzentration mindestens eines elementaren Mineralnährstoffs, ausgewählt aus Magnesium, Calcium, Kalium und Gemischen davon umfasst.
29. Zusammensetzung gemäß Anspruch 28, wobei das Pflanzensterol/-stanol aus natürlichen Pflanzensterolquellen angereichert oder gereinigt worden ist.
30. Zusammensetzung gemäß Anspruch 29, wobei das Pflanzensterol/-stanol beta-Sitosterol, beta-Sitostanol und ein Gemisch davon umfasst.
31. Zusammensetzung gemäß einem der Ansprüche 28 bis 30, wobei erhöhte Magnesium und Calciumkonzentrationen

nen in der Zusammensetzung enthalten sind.

32. Zusammensetzung gemäß Anspruch 31, wobei zusätzlich eine erhöhte Kaliumkonzentration in der Zusammensetzung enthalten ist.

33. Zusammensetzung gemäß Anspruch 28, wobei die erhöhte Magnesiumkonzentration als mindestens eine Magnesiumverbindung enthalten ist, die aus Magnesiumsulfat, Magnesiumchlorid, Magnesiumhydroxid, Magnesiumoxid, Magnesiumcarbonat und Aminosäuremagnesiumsalzen ausgewählt ist.

34. Zusammensetzung gemäß Anspruch 28, wobei die erhöhte Calciumkonzentration als mindestens eine Calciumverbindung enthalten ist, die aus Calciumphosphaten, Calciumcarbonat, Calciumsulfat, Calciumchlorid, Calciumlactat, Calciumcitrat, Calciumacetat, Calciumpropionat, Calciumtartrat, Calciummalginat, Calciumgluconat und Calciumglutamat ausgewählt ist.

35. Zusammensetzung gemäß Anspruch 28, wobei die erhöhte Kaliumkonzentration als mindestens eine Kaliumverbindung enthalten ist, die aus Kaliumphosphaten, Kaliumcarbonat, Kaliumbicarbonat, Kaliumsulfat, Kaliumchlorid, Kaliumlactat, Kaliumacetat, Kaliumpropionat, Kaliumtartrat, Kaliummalginat und Kaliumgluconat ausgewählt ist.

36. Zusammensetzung gemäß einem der Ansprüche 28-35, wobei eine verringerte Natriumkonzentration in der Zusammensetzung enthalten ist.

37. Brot-, keks- oder plätzchenähnliches Lebensmittelprodukt, das eine erhöhte Konzentration an Pflanzensterol/-stanol und eine erhöhte Konzentration mindestens eines aus Magnesium, Calcium und Kalium hat, wobei die erhöhten Konzentrationen ausreichen, um in dem am Ende erhaltenen Lebensmittel eine Pflanzensterol/-stanolkonzentration zwischen 0,1 und 8 Gewichtsprozent, eine Magnesiumkonzentration zwischen 0,01 und 1 Gew.-%, eine Calciumkonzentration zwischen 0,01 und 1 Gew.-% und eine Kaliumkonzentration zwischen 0,1 und 1,5 Gew.-% bereitzustellen.

38. Lebensmittelprodukt gemäß Anspruch 37, wobei die Pflanzensterol/-stanolkonzentration mindestens 2,4 Gewichtsprozent, die Magnesiumkonzentration mindestens 0,024 Gew.-%, die Calciumkonzentration mindestens 0,038 Gew.-% und die Kaliumkonzentration mindestens 0,19 Gew.-% beträgt.

39. Würstchen- oder Hackfleischprodukt, das eine erhöhte Konzentration an Pflanzensterol/-stanol und an mindestens einem aus Magnesium, Calcium und Kalium hat, wobei die erhöhten Konzentrationen ausreichen, um in dem am Ende erhaltenen Lebensmittel eine Pflanzensterol- oder Pflanzensterolderivatkonzentration zwischen 0,1 und 10 Gewichtsprozent, eine Magnesiumkonzentration zwischen 0,01 und 1,5 Gew.-%, eine Calciumkonzentration zwischen 0,01 und 1,5 Gew.-% und eine Kaliumkonzentration zwischen 0,1 und 1,5 Gew.-% bereitzustellen.

40. Produkt gemäß Anspruch 39, wobei die Pflanzensterol/-stanolkonzentration mindestens 1 Gewichtsprozent, die Magnesiumkonzentration mindestens 0,016 Gew.-%, die Calciumkonzentration mindestens 0,050 Gew.-% und die Kaliumkonzentration mindestens 0,20 Gew.-% beträgt.

41. Pflanzenöl-Butter-Gemisch, das eine erhöhte Konzentration an Pflanzensterol/-stanol und an mindestens einem aus Magnesium, Calcium und Kalium hat, wobei die erhöhten Konzentrationen ausreichen, um in der am Ende erhaltenen Mischung eine Pflanzensterol- oder Pflanzensterolderivatkonzentration zwischen 0,5 und 15 Gewichtsprozent, eine Magnesiumkonzentration zwischen 0 und 0,4 Gew.-%, eine Calciumkonzentration zwischen 0 und 1 Gew.-% und eine Kaliumkonzentration zwischen 0 und 1 Gew.-% bereitzustellen.

42. Gemisch gemäß Anspruch 41, wobei die Pflanzensterol/-stanolkonzentration mindestens 0,5 Gewichtsprozent, die Magnesiumkonzentration mindestens 0,024 Gew.-%, die Calciumkonzentration mindestens 0,044 Gew.-% und die Kaliumkonzentration mindestens 0,29 Gew.-% beträgt.

43. Marinade, die eine erhöhte Konzentration an Pflanzensterol/-stanol und an mindestens einem aus Magnesium, Calcium und Kalium hat, wobei die erhöhten Konzentrationen ausreichen, um in der am Ende erhaltenen Marinade eine Pflanzensterol- oder Pflanzensterolderivatkonzentration zwischen 0,5 und 18 Gewichtsprozent, eine Magnesiumkonzentration zwischen 0 und 1 Gew.-%, eine Calciumkonzentration zwischen 0 und 1 Gew.-% und eine Kaliumkonzentration zwischen 0 und 2,5 Gew.-% bereitzustellen.



44. Marinade gemäß Anspruch 43, wobei die Pflanzensterol/-stanolkonzentration mindestens 0,5 Gewichtsprozent, die Magnesiumkonzentration mindestens 0,020 Gew.-%, die Calciumkonzentration mindestens 0,040 Gew.-% und die Kaliumkonzentration mindestens 0,28 Gew.-% beträgt.
- 5 45. Salatsoße, die eine erhöhte Konzentration an Pflanzensterol/-stanol und an mindestens einem aus Magnesium, Calcium und Kalium hat, wobei die erhöhten Konzentrationen ausreichen, um in dem am Ende erhaltenen Lebensmittel eine Pflanzensterol- oder Pflanzensterolderivatkonzentration zwischen 0,5 und 8 Gewichtsprozent, eine Magnesiumkonzentration zwischen 0 und 3 Gew.-%, eine Calciumkonzentration zwischen 0 und 3 Gew.-% und eine Kaliumkonzentration zwischen 0 und 3 Gew.-% bereitzustellen.
- 10 46. Salatsoße gemäß Anspruch 45, wobei die Pflanzensterol/-stanolkonzentration mindestens 0,5 Gewichtsprozent, die Magnesiumkonzentration mindestens 0,012 Gew.-%, die Calciumkonzentration mindestens 0,022 Gew.-% und die Kaliumkonzentration mindestens 0,15 Gew.-% beträgt.
- 15 47. Mayonnaise, die eine erhöhte Konzentration an Pflanzensterol/-stanol und an mindestens einem aus Magnesium, Calcium und Kalium hat, wobei die erhöhten Konzentrationen ausreichen, um in der am Ende erhaltenen Mayonnaise eine Pflanzensterol- oder Pflanzensterolderivatkonzentration zwischen 0,5 und 15 Gewichtsprozent, eine Magnesiumkonzentration zwischen 0 und 3 Gew.-%, eine Calciumkonzentration zwischen 0 und 3 Gew.-% und eine Kaliumkonzentration zwischen 0 und 3 Gew.-% bereitzustellen.
- 20 48. Mayonnaise gemäß Anspruch 47, wobei die Pflanzensterol/-stanolkonzentration mindestens 0,5 Gewichtsprozent, die Magnesiumkonzentration mindestens 0,012 Gew.-%, die Calciumkonzentration mindestens 0,022 Gew.-% und die Kaliumkonzentration mindestens 0,15 Gew.-% beträgt.
- 25 49. Joghurt, das eine erhöhte Konzentration an Pflanzensterol/-stanol und an mindestens einem aus Magnesium, Calcium und Kalium hat, wobei die erhöhten Konzentrationen ausreichen, um in dem am Ende erhaltenen Joghurt eine Pflanzensterol- oder Pflanzensterolderivatkonzentration zwischen 0,2 und 10 Gewichtsprozent, eine Magnesiumkonzentration zwischen 0,01 und 3 Gew.-%, eine Calciumkonzentration zwischen 0,1 und 3 Gew.-% und eine Kaliumkonzentration zwischen 0,1 und 3 Gew.-% bereitzustellen.
- 30 50. Jogurt gemäß Anspruch 49, wobei die Magnesiumkonzentration mindestens 0,14 Gew.-% beträgt.
51. Lebensmittelgewürz, das eine erhöhte Konzentration an Pflanzensterol oder Pflanzensterolderivat und an mindestens einem aus Magnesium, Calcium und Kalium in einer solchen Menge aufweist, dass im Gewürz eine Pflanzensterol- oder Pflanzensterolderivatkonzentration zwischen 2 und 98 Gewichtsprozent, eine Magnesiumkonzentration zwischen 0 und 30 Gew.-%, eine Calciumkonzentration zwischen 0 und 30 Gew.-% und eine Kaliumkonzentration zwischen 0 und 50 Gew.-% bereitgestellt wird.
- 35 52. Lebensmittelgewürz gemäß Anspruch 51, wobei die Pflanzensterol/-stanolkonzentration mindestens 2 Gewichtsprozent, die Magnesiumkonzentration mindestens 10,3 Gew.-%, die Calciumkonzentration mindestens 0,61 Gew.-% und die Kaliumkonzentration mindestens 7,5 Gew.-% beträgt.
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#### Revendications

- 45 1. Procédé de préparation d'assaisonnement alimentaire, de compositions pour ingrédients alimentaires et pour aliments capables de réduire l'hypercholestérolémie et de diminuer l'hypertension artérielle, consistant à apporter dans ladite composition un taux accru de stérol/stanol végétal et un taux accru de nutriment élément minéral, ledit stérol/stanol comprenant au moins un stérol végétal ou un dérivé de stérol végétal sélectionné parmi le groupe constitué par le bêta-sitostérol, le stigmasterol, le campesterol, le dihydrobrassicasterol et/ou les formes stanol solidifiées desdits stérols, et/ou des esters d'acides gras desdits stérols et stanols, et ledit nutriment élément minéral comprenant au moins un composant sélectionné parmi le groupe constitué par le magnésium, le calcium et le potassium.
- 50 2. Procédé selon la revendication 1, dans lequel le stérol/stanol végétal a été concentré ou purifié à partir d'une source naturelle de stérol végétal.
- 55 3. Procédé selon la revendication 2, dans lequel ledit stérol/stanol végétal comprend du bêta-sitostérol, du bêta-

sitostanol et un mélange de ces substances.

4. Procédé selon l'une quelconque des revendications 1 à 3, comprenant l'incorporation dans ladite composition d'au moins un stérol/stanol végétal afin de produire une augmentation de 1 % ou plus de stérol/stanol végétal dans le poids sec du régime alimentaire.
5. Procédé selon la revendication 1, dans lequel des taux accrus de magnésium et de calcium sont apportés dans ladite composition.
6. Procédé selon la revendication 5, dans lequel un taux élevé de potassium est en outre apporté dans ladite composition.
7. Procédé selon la revendication 1, dans lequel un taux accru de magnésium est apporté en incorporant dans ladite composition un composé de magnésium sélectionné parmi le groupe constitué par le sulfate de magnésium, le chlorure de magnésium, l'hydroxyde de magnésium, l'oxyde de magnésium, le carbonate de magnésium, des sels de magnésium d'acides aminés et leurs mélanges.
8. Procédé selon la revendication 1, dans lequel un taux accru de calcium est apporté en incorporant dans ladite composition un composé de calcium sélectionné parmi le groupe constitué par les phosphates de calcium, le carbonate de calcium, le sulfate de calcium, le chlorure de calcium, le lactate de calcium, les citrates de calcium, l'acétate de calcium, le propionate de calcium, le tartrate de calcium, l'alginate de calcium, le gluconate de calcium, le glutamate de calcium et leurs mélanges.
9. Procédé selon la revendication 1, dans lequel un taux accru de potassium est apporté en incorporant dans ladite composition un composé de potassium sélectionné parmi le groupe constitué par les phosphates de potassium, le carbonate de potassium, le bicarbonate de potassium, le sulfate de potassium, le chlorure de potassium, le lactate de potassium, l'acétate de potassium, le propionate de potassium, le tartrate de potassium, l'alginate de potassium, le gluconate de potassium et leurs mélanges.
10. Procédé selon l'une quelconque des revendications 1 à 9, comprenant l'apport dans ladite composition d'un taux amoindri de chlorure de sodium.
11. Procédé selon la revendication 1, comprenant l'incorporation dans un pain, un petit gâteau ou un biscuit comme aliment, d'un taux accru de stérol/stanol végétal et d'un taux accru d'au moins un composant parmi le magnésium, le calcium et le potassium, lesdits taux accrus étant suffisants pour apporter dans l'aliment final une concentration de stérol/stanol végétal comprise entre 0,1 et 8 % en poids, une concentration en magnésium comprise entre 0,01 et 1 %, une concentration en calcium comprise entre 0,01 et 1 et une concentration en potassium comprise entre 0,1 et 1,5 %.
12. Procédé selon la revendication 11, dans lequel ladite concentration en stérol/stanol végétal est au moins de 2,4 % en poids, ladite concentration en magnésium est au moins de 0,024 % en poids, ladite concentration en calcium est au moins de 0,038 % en poids et ladite concentration en potassium est au moins de 0,19 % en poids.
13. Procédé selon la revendication 1, comprenant l'incorporation dans un produit à base de saucisse ou de hachis d'un taux accru de stérol/stanol végétal et d'au moins un composant parmi le magnésium, le calcium et le potassium, lesdits taux accrus étant suffisants pour apporter dans l'aliment final une concentration en stérol végétal ou en dérivé de stérol végétal comprise entre 0,1 et 10 % en poids, une concentration en magnésium comprise entre 0,01 et 1,5 %, une concentration en calcium comprise entre 0,01 et 1,5 % et une concentration en potassium comprise entre 0,1 et 1,5 %.
14. Procédé selon la revendication 13, dans lequel ladite concentration en stérol/stanol végétal est au moins de 1 % en poids, ladite concentration en magnésium est au moins de 0,016 % en poids, ladite concentration en calcium est au moins de 0,050 % en poids et ladite concentration en potassium est au moins de 0,20 % en poids.
15. Procédé selon la revendication 1, comprenant l'incorporation dans un mélange huile végétale/beurre d'un taux accru de stérol/stanol végétal et d'au moins un composant parmi le magnésium, le calcium et le potassium, lesdits taux accrus étant suffisants pour apporter dans le mélange final une concentration de stérol végétal ou de dérivé de stérol végétal comprise entre 0,5 et 15 % en poids, une concentration en magnésium comprise entre 0 et 0,4

%, une concentration en calcium comprise entre 0 et 1 % et une concentration en potassium comprise entre 0 et 1 %.

16. Procédé selon la revendication 15, dans lequel ladite concentration du stérol/stanol végétal est au moins de 0,5 % en poids, ladite concentration en magnésium est au moins de 0,024 % en poids, ladite concentration en calcium est au moins de 0,044 % en poids et ladite concentration en potassium est au moins de 0,29 % en poids.
17. Procédé selon la revendication 1 comprenant l'incorporation dans une marinade d'un taux accru de stérol/stanol végétal et d'au moins un composant parmi le magnésium, le calcium et le potassium, lesdits taux accrus étant suffisants pour apporter dans la marinade finale une concentration en stérol végétal ou en dérivé de stérol végétal comprise entre 0,5 et 18 % en poids, une concentration en magnésium comprise entre 0 et 1 %, une concentration en calcium comprise entre 0 et 1 % et une concentration en potassium comprise entre 0 et 2,5 %.
18. Procédé selon la revendication 17, dans lequel ladite concentration en stérol/stanol végétal est au moins de 0,5 % en poids, ladite concentration en magnésium est au moins de 0,020 % en poids, ladite concentration en calcium est au moins de 0,040 % en poids et ladite concentration en potassium est au moins de 0,28 % en poids.
19. Procédé selon la revendication 1, comprenant l'incorporation dans une sauce pour salade d'un taux accru de stérol/stanol végétal et d'au moins un composant parmi le magnésium, le calcium et le potassium, lesdits taux accrus étant suffisants pour apporter dans l'aliment final une concentration en stérol végétal ou en dérivé de stérol végétal comprise entre 0,5 et 8 % en poids, une concentration en magnésium comprise entre 0 et 3 %, une concentration en calcium comprise entre 0 et 3 % et une concentration en potassium comprise entre 0 et 3 %.
20. Procédé selon la revendication 19, dans lequel ladite concentration en stérol/stanol végétal est au moins de 0,5 % en poids, ladite concentration en magnésium est au moins de 0,012 % en poids, ladite concentration en calcium est au moins de 0,022 % en poids et ladite concentration en potassium est au moins de 0,15 % en poids.
21. Procédé selon la revendication 1, comprenant l'incorporation dans une mayonnaise d'un taux accru de stérol/stanol végétal et d'au moins un composant parmi le magnésium, le calcium et le potassium, lesdits taux accrus étant suffisants pour apporter dans la mayonnaise finale une concentration en stérol végétal ou en dérivé de stérol végétal comprise entre 0,5 et 15 % en poids, une concentration en magnésium comprise entre 0 et 3 %, une concentration en calcium comprise entre 0 et 3 % et une concentration en potassium comprise entre 0 et 3 %.
22. Procédé selon la revendication 21, dans lequel ladite concentration en stérol/stanol est au moins de 0,5 % en poids, ladite concentration en magnésium est au moins de 0,012 % en poids, ladite concentration en calcium est au moins de 0,022 % en poids et ladite concentration en potassium est au moins de 0,15 % en poids.
23. Procédé selon la revendication 1 comprenant l'incorporation dans un yaourt d'un taux accru de stérol/stanol végétal et d'au moins un composant parmi le magnésium, le calcium et le potassium, lesdits taux accrus étant suffisants pour apporter dans le yaourt final une concentration en stérol végétal ou en dérivé de stérol végétal comprise entre 0,2 et 10 % en poids, une concentration en magnésium comprise entre 0,1 et 3 %, une concentration en calcium comprise entre 0,1 et 3 % et une concentration en potassium comprise entre 0,1 et 3 %.
24. Procédé selon la revendication 23, dans lequel ladite concentration en magnésium est au moins de 0,14 % en poids.
25. Procédé selon la revendication 1 comprenant l'incorporation dans un assaisonnement alimentaire d'un stérol végétal ou d'un dérivé de stérol végétal et d'au moins un composant parmi le magnésium, le calcium et le potassium, dans une quantité apportant dans l'assaisonnement une concentration en stérol végétal ou en dérivé de stérol végétal comprise entre 2 et 98 % en poids, une concentration en magnésium comprise entre 0 et 30 %, une concentration en calcium comprise entre 0 et 30 % et une concentration en potassium comprise entre 0 et 50 %.
26. Procédé selon la revendication 25, dans lequel ladite concentration en stérol/stanol végétal est au moins de 2 % en poids, ladite concentration en magnésium est au moins de 10,3 % en poids, ladite concentration en calcium est au moins de 0,61 % en poids et ladite concentration en potassium est au moins de 7,5 % en poids.
27. Utilisation d'un assaisonnement alimentaire préparé selon la revendication 25 ou la revendication 26 dans des ingrédients alimentaires ou des aliments.

28. Assaisonnement alimentaire, ingrédient alimentaire et/ou composition alimentaire capable de diminuer l'hypercholestérolémie et de réduire l'hypertension artérielle, ladite composition comprenant un taux accru d'au moins un stérol/stanol végétal sélectionné parmi le groupe constitué par le bêta-sitostérol, le stigmasterol, le campesterol, le dihydrobrassicastérol, les formes stanol hydrogénés desdits stérols, les esters d'acides gras desdits stérols et stanols et leurs mélanges, et un taux accru d'au moins un nutriment élément minéral sélectionné parmi le groupe constitué par le magnésium, le calcium, le potassium et leurs mélanges.
29. Composition selon la revendication 28, dans laquelle ledit stérol/stanol végétal a été concentré ou purifié à partir de sources naturelles de stérol végétal.
30. Composition selon la revendication 29, dans laquelle ledit stérol/stanol végétal comprend du bêta-sitostérol, du bêta-sitostanol ou leur mélange.
31. Composition selon l'une quelconque des revendications 28 à 30, dans laquelle des taux accrus de magnésium et de calcium sont inclus dans ladite composition.
32. Composition selon la revendication 31, dans laquelle un taux accru de potassium est en outre inclus dans ladite composition.
33. Composition selon la revendication 28, dans laquelle ledit taux accru de magnésium est inclus sous la forme d'au moins un composé de magnésium sélectionné parmi le groupe constitué par le sulfate de magnésium, le chlorure de magnésium, l'hydroxyde de magnésium, l'oxyde de magnésium, le carbonate de magnésium et des sels de magnésium d'acides aminés.
34. Composition selon la revendication 28, dans laquelle ledit taux de calcium accru est inclus sous la forme d'au moins un composé de calcium sélectionné parmi le groupe constitué par les phosphates de calcium, le carbonate de calcium, le sulfate de calcium, le chlorure de calcium, le lactate de calcium, les citrates de calcium, l'acétate de calcium, le propionate de calcium, le tartrate de calcium, l'alginate de calcium, le gluconate de calcium et le glutamate de calcium.
35. Composition selon la revendication 28, dans laquelle ledit taux de potassium accru est inclus sous la forme d'au moins un composé de potassium sélectionné parmi le groupe constitué par les phosphates de potassium, le carbonate de potassium, le bicarbonate de potassium, le sulfate de potassium, le chlorure de potassium, le lactate de potassium, l'acétate de potassium, le propionate de potassium, le tartrate de potassium, l'alginate de potassium et le gluconate de potassium.
36. Composition selon l'une quelconque des revendications 28 à 35, dans laquelle un taux réduit de sodium est inclus dans ladite composition.
37. Pain, petit gâteau ou biscuit comme aliment ayant un taux accru de stérol/stanol végétal et un taux accru d'au moins un composant parmi le magnésium, le calcium et le potassium, lesdits taux accrus étant suffisants pour apporter dans l'aliment final une concentration en stérol/stanol comprise entre 0,1 et 8 % en poids, une concentration en magnésium comprise entre 0,01 et 1 %, une concentration en calcium comprise entre 0,01 et 1 % et une concentration en potassium comprise entre 0,1 et 1,5 %.
38. Produit alimentaire selon la revendication 37, dans lequel ladite concentration en stérol/stanol végétal est au moins de 2,4 % en poids, ladite concentration en magnésium est au moins de 0,024 % en poids, ladite concentration en calcium est au moins de 0,038 % en poids et ladite concentration en potassium est au moins de 0,19 % en poids.
39. Produit à base de saucisse ou de hachis ayant un taux accru de stérol/stanol végétal et d'au moins un composant parmi le magnésium, le calcium et le potassium, lesdits taux augmentés étant suffisants pour apporter dans l'aliment final une concentration en stérol végétal ou en dérivé de stérol végétal comprise entre 0,1 et 10 % en poids, une concentration en magnésium comprise entre 0,01 et 1,5 %, une concentration en calcium comprise entre 0,01 et 1,5 % et une concentration en potassium comprise entre 0,1 et 1,5 %.
40. Produit selon la revendication 39, dans lequel ladite concentration en stérol/stanol végétal est au moins de 1 % en poids, ladite concentration en magnésium est au moins de 0,016 % en poids, ladite concentration en calcium est au moins de 0,050 % en poids et ladite concentration en potassium est au moins de 0,20 % en poids.

41. Mélange huile végétale-beurre ayant un taux accru de stérol/stanol végétal et d'au moins un composant parmi le magnésium, le calcium et le potassium, lesdits taux accrus étant suffisants pour apporter dans le mélange final une concentration de stérol végétal ou de dérivé de stérol végétal comprise entre 0,5 et 15 % en poids, une concentration en magnésium comprise entre 0 et 0,4 %, une concentration en calcium comprise entre 0 et 1 % et une concentration en potassium comprise entre 0 et 1 %.
42. Mélange selon la revendication 41, dans lequel la concentration en stérol/stanol végétal est au moins de 0,5 % en poids, ladite concentration en magnésium est au moins de 0,024 % en poids, ladite concentration en calcium est au moins de 0,044 % en poids et ladite concentration en potassium est au moins de 0,29 % en poids.
43. Marinade ayant un taux accru de stérol/stanol végétal et d'au moins un composant parmi le magnésium, le calcium et le potassium, lesdits taux accrus étant suffisants pour apporter dans la marinade finale, une concentration en stérol végétal ou en dérivé de stérol végétal comprise entre 0,5 et 18 % en poids, une concentration en magnésium comprise entre 0 et 1 %, une concentration en calcium comprise entre 0 et 1 % et une concentration en potassium comprise entre 0 et 2,5 %.
44. Marinade selon la revendication 43, dans laquelle la concentration en stérol/stanol végétal est au moins de 0,5 % en poids, ladite concentration en magnésium est au moins de 0,020 % en poids, ladite concentration en calcium est au moins de 0,040 % en poids et ladite concentration en potassium est au moins de 0,28 % en poids.
45. Sauce pour salade ayant un taux accru de stérol/stanol végétal et d'au moins un composant parmi le magnésium, le calcium et le potassium, lesdits taux accrus étant suffisants pour apporter dans l'aliment final une concentration en stérol végétal ou en dérivé de stérol végétal comprise entre 0,5 et 8 % en poids, une concentration en magnésium comprise entre 0 et 3 %, une concentration en calcium comprise entre 0 et 3 % et une concentration en potassium comprise entre 0 et 3 %.
46. Sauce pour salade selon la revendication 45, dans laquelle ladite concentration en stérol/stanol végétal est au moins de 0,5 % en poids, ladite concentration en magnésium est au moins de 0,012 % en poids, ladite concentration en calcium est au moins de 0,022 % en poids et ladite concentration en potassium est au moins de 0,15 % en poids.
47. Mayonnaise ayant un taux accru de stérol/stanol végétal et d'au moins un composant parmi le magnésium, le calcium et le potassium, lesdits taux accrus étant suffisants pour apporter dans la mayonnaise finale une concentration en stérol végétal ou en dérivé de stérol végétal comprise entre 0,5 et 15 % en poids, une concentration en magnésium comprise entre 0 et 3 %, une concentration en calcium comprise entre 0 et 3 % et une concentration en potassium comprise entre 0 et 3 %.
48. Mayonnaise selon la revendication 47, dans laquelle ladite concentration en stérol/stanol végétal est au moins de 0,5 % en poids, ladite concentration en magnésium est au moins de 0,012 % en poids, ladite concentration en calcium est au moins de 0,022 % en poids et ladite concentration en potassium est au moins de 0,15 % en poids.
49. Yaourt ayant un taux accru de stérol/stanol végétal et d'au moins un composant parmi le magnésium, le calcium et le potassium, lesdits taux accrus étant suffisants pour apporter dans le yaourt final une concentration en stérol végétal ou en dérivé de stérol végétal comprise entre 0,2 et 10 % en poids, une concentration en magnésium comprise entre 0,01 et 3 %, une concentration en calcium comprise entre 0,1 et 3 % et une concentration en potassium comprise entre 0,1 et 3 %.
50. Yaourt selon la revendication 49, dans lequel ladite concentration en magnésium est au moins de 0,14 %.
51. Assaisonnement alimentaire ayant un taux accru de stérol végétal ou de dérivé de stérol végétal et d'au moins un composant parmi le magnésium, le calcium et le potassium dans une quantité apportant dans l'assaisonnement une concentration en stérol végétal ou en dérivé de stérol végétal comprise entre 2 et 98 % en poids, une concentration en magnésium comprise entre 0 et 30 %, une concentration en calcium comprise entre 0 et 30 % et une concentration en potassium comprise entre 0 et 50 %.
52. Assaisonnement alimentaire selon la revendication 51, dans lequel la concentration en stérol/stanol végétal est au moins de 2 % en poids, ladite concentration en magnésium est au moins de 10,3 % en poids, ladite concentration en calcium est au moins de 0,61 % en poids et ladite concentration en potassium est au moins de 7,5 % en poids.

